FOREST CONTROL
by
CONTINUOUS INVENTORY

"Today, I have grown taller from walking
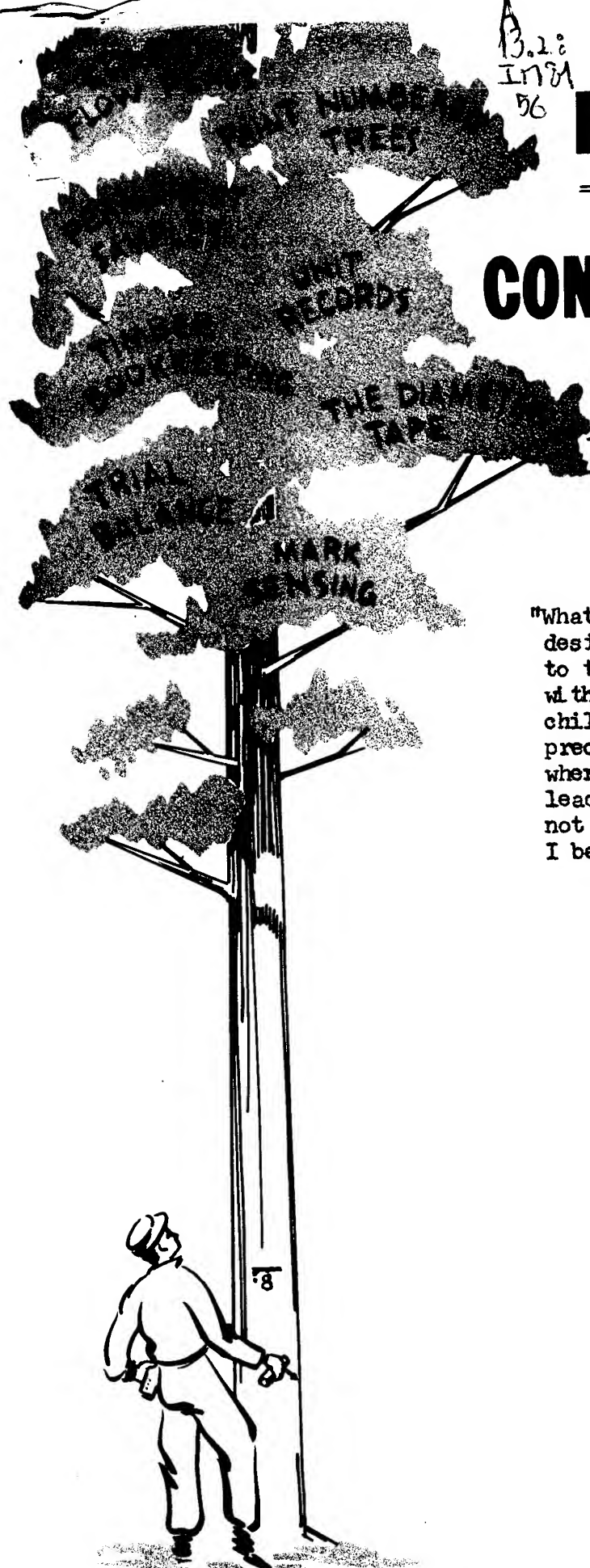with the trees."

...Karle Wilson

"What I have to do is to induce my intense
desire to take account of the facts, not
to try to force the facts into agreement
with my wishes. Accept a fact as a little
child does. Be prepared to give up every
preconceived idea. Follow nature humbly
wherever, into whatever abysses she may
lead you or you will learn nothing. It was
not until I resolved to do all this that
I began to experience any peace of mind."

Thomas Henry Huxley
(100 years ago)

FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE

The Forester

CONVERTING RATIOS

INTERNATIONAL TO SCRIBNER LOG SCALE

It has been the practice with C.F.I. to calculate the board foot volumes of each individual tree on an International log scale basis. Not only does this give a truer picture of the sawlog volumes in trees and stands than the Scribner rule, but it also gives a measure of the growth of trees unhampered by problems of over-run or under-run.

It is practical and easy to get into the habit of thinking in terms of International log scale, but some companies and some public agencies prefer the Scribner scale. In order to make these Scribner values available, converting ratios have been calculated. These ratios, which are generally applicable in the Lake and Central States, are used directly in the volume computing formula.

THE FORMULA

$$V = \underline{/}A + (B \times L) \underline{} \underline{7} \quad (Sp) \ (So) \ (Cs)$$

IN WHICH

A) = Pre-computed volume factors available in master deck form.
B)   (See table attached)

L = Actual usable length of the tree taken in the woods
Sp = Species correction factor
So = Soundness correction factor; the cull deduction
Cs = Converting ratio, International to Scribner log scale
V = BOARD FOOT VOLUME

EXAMPLE

Computing the volume of a tree 18.6 inches in diameter and 38 feet
Species factor   1.05   usable length.
Soundness factor   .093
Converting ratio   .897

THE PROBLEM

$$V = \underline{/}30.97 + (7.01 \times 38) \underline{} \underline{7} \quad (1.05) \ (.093) \ (.897)$$

V = 290.4 Net International board feet
V = 260.5 Net Scribner board feet

It should be understood that the accuracy of the Scribner volumes secured with these converting ratios is most satisfactory for the sum total results for the whole forest, and less reliable in finer breakdowns of the data. Variations from the true Scribner scale will be greatest for the individual tree.

CAL STOTT,
Forester
U. S. Forest Service

BOARD FOOT VOLUME FACTORS

INTERNATIONAL LOG SCALE

(For Punch Card Computing)

September, 1954

D.B.H.	A Factor	B Factor	Base Usable Length
12	16.50	2.29	15'
14	16.95	3.66	20'
16	20.90	5.07	25'
18	28.16	6.55	27'
20	38.50	8.10	29'
22	51.71	9.71	31'
24	67.59	11.39	31'
26	85.92	13.16	32'
28	106.49	15.00	33'
30	129.09	16.94	33'
32	153.52	18.96	33'
34	179.55	21.08	33'
36	206.98	23.31	33'

RATIOS FOR CONVERTING INDIVIDUAL TREE VOLUMES

from
INTERNATIONAL TO SCRIBNER SCALE

D.B.H.	Ratio	D.B.H.	Ratio	D.B.H.	Ratio	D.B.H.	Ratio
9.0	.727	14.0	.853	19.0	.900	24.0	.927
1	.730	1	.855	1	.901	1	.927
2	.733	2	.856	2	.902	2	.927
3	.736	3	.857	3	.902	3	.928
4	.739	4	.859	4	.903	4	.928
5	.742	5	.860	5	.903	5	.928
6	.745	6	.862	6	.904	6	.928
7	.748	7	.863	7	.905	7	.929
8	.751	8	.864	8	.905	8	.929
9	.754	9	.865	9	.906	9	.930
10.0	.757	15.0	.866	20.0	.907	25.0	.930
1	.760	1	.867	1	.907	1	.930
2	.763	2	.868	2	.908	2	.931
3	.766	3	.870	3	.908	3	.931
4	.768	4	.871	4	.909	4	.932
5	.772	5	.872	5	.910	5	.932
6	.774	6	.873	6	.911	6	.932
7	.777	7	.874	7	.912	7	.932
8	.780	8	.875	8	.912	8	.933
9	.782	9	.876	9	.913	9	.933
11.0	.785	16.0	.877	21.0	.913	26.0	.933
1	.788	1	.878	1	.914	1	.933
2	.791	2	.879	2	.914	2	.933
3	.794	3	.880	3	.915	3	.933
4	.796	4	.881	4	.915	4	.934
5	.799	5	.882	5	.916	5	.934
6	.801	6	.883	6	.916	6	.934
7	.804	7	.884	7	.917	7	.934
8	.806	8	.884	8	.917	8	.935
9	.809	9	.885	9	.917	9	.935
12.0	.811	17.0	.886	22.0	.918	27.0	.935
1	.814	1	.887	1	.918	1	.935
2	.816	2	.887	2	.919	2	.935
3	.818	3	.888	3	.919	3	.936
4	.821	4	.889	4	.920	4	.936
5	.824	5	.890	5	.920	5	.936
6	.826	6	.891	6	.921	6	.936
7	.828	7	.892	7	.921	7	.936
8	.830	8	.892	8	.922	8	.936
9	.832	9	.893	9	.922	9	.936
13.0	.834	18.0	.894	23.0	.923	28.0	.937
1	.836	1	.894	1	.923	1	.937
2	.838	2	.895	2	.924	2	.937
3	.840	3	.895	3	.924	3	.937
4	.842	4	.896	4	.925	4	.937
5	.844	5	.896	5	.925	5	.937
6	.846	6	.897	6	.925	6	.938
7	.848	7	.897	7	.926	7	.938
8	.850	8	.898	8	.926	8	.938
9	.852	9	.899	9	.927	9	.938

Converting Factors International to Scribner

D.B.H.	Ratio	D.B.H.	Ratio	D.B.H.	Ratio	D.B.H.	Ratio
29.0	.938	34.0	.943	39.0	.946		
1	.938	1	.943	1	.946		
2	.939	2	.943	2	.946		
3	.939	3	.943	3	.946		
4	.939	4	.943	4	.946		
5	.939	5	.943	5	.946		
6	.939	6	.943	6	.946		
7	.940	7	.943	7	.946		
8	.940	8	.943	8	.946		
9	.940	9	.943	9	.947		
30.0	.940	35.0	.943	40.0	.947		
1	.940	1	.944				
2	.940	2	.944				
3	.940	3	.944				
4	.940	4	.944				
5	.940	5	.944				
6	.940	6	.944				
7	.940	7	.944				
8	.940	8	.944				
9	.940	9	.944				
31.0	.940	36.0	.944				
1	.940	1	.944				
2	.940	2	.945				
3	.940	3	.945				
4	.940	4	.945				
5	.940	5	.945				
6	.940	6	.945				
7	.940	7	.945				
8	.941	8	.945				
9	.941	9	.945				
32.0	.941	37.0	.945				
1	.941	1	.945				
2	.941	2	.945				
3	.941	3	.945				
4	.941	4	.945				
5	.941	5	.945				
6	.941	6	.945				
7	.941	7	.945				
8	.941	8	.945				
9	.942	9	.945				
33.0	.942	38.0	.945				
1	.942	1	.945				
2	.942	2	.946				
3	.942	3	.946				
4	.942	4	.946				
5	.942	5	.946				
6	.942	6	.946				
7	.942	7	.946				
8	.943	8	.946				
9	.943	9	.946				